

I claim:

1. A method for converting interlacing video information into progressive video information, comprising:

- 5 - providing first interlacing field data comprising a plurality of pixel lines;
- providing second interlacing field data comprising a plurality of pixel lines which second interlacing field data is temporally displaced from the first interlacing field data;
- selecting one of the first and second interlacing field data to be a selected interlacing field data and a remaining one of the first and second interlacing field data to be a reference interlacing field data;
- 10 - adding additional pixel information to the selected interlacing field data, which additional pixel information comprises modified interlacing field data;
- selecting a first region comprising a plurality of pixels in the modified interlacing field data;
- 15 - selecting a first plurality of comparison regions, each comprising a plurality of pixels, in the reference interlacing field data;
- comparing each comparison region of the first plurality of comparison regions with the first region to identify a first comparison region that most closely corresponds to the first region;
- 20 - selecting a second region comprising a plurality of pixels in the modified interlacing field data, which second region partially overlaps with the first region;
- selecting a second plurality of comparison regions, each comprising a plurality of pixels, in the reference interlacing field data;
- 25 - comparing each comparison region of the second plurality of comparison regions with the second region to identify a second comparison region that most closely corresponds to the second region;
- using at least information corresponding to the first comparison region and the second comparison region to convert the selected interlacing field data into
- 30 progressive video information.

2. The method of claim 1 wherein:

- providing first interlacing field data comprises providing one of top and bottom field data; and

5 - providing second interlacing field data comprises providing field data having a polarity opposite that chosen as the first interlacing field data.

3. The method of claim 1 wherein adding additional pixel information to the selected interlacing field data at least comprises adding an additional line of pixels between pairs of pixel lines that comprises the selected interlacing field data.

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4. The method of claim 3 wherein adding an additional line of pixels between pairs of pixel lines that comprises the selected interlacing field data comprises using vertical filtering to select at least some of the pixels that comprise the additional lines of pixels.

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5. The method of claim 1 wherein selecting a first region comprising a plurality of pixels in the modified interlacing field data includes selecting an 8 by 8 pixel array.

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6. The method of claim 5 wherein selecting a first plurality of comparison regions in the reference interlacing field data includes selecting a first plurality of comparison regions wherein each of the comparison regions comprises an 8 by 8 pixel array.

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7. The method of claim 1 wherein selecting a first plurality of comparison regions, each comprising a plurality of pixels, in the reference interlacing field data includes selecting a first comparison region that has a same relative location in the reference interlacing field data as the first region has in the modified interlacing data field.

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8. The method of claim 7 wherein selecting a first plurality of comparison regions, each comprising a plurality of pixels, in the reference interlacing field data further includes selecting a plurality of additional comparison regions wherein at least some of the additional comparison regions partially overlap the first comparison region.

9. The method of claim 1 wherein comparing each comparison region of the first plurality of comparison regions with the first region to identify a first comparison region that most closely corresponds to the first region includes determining a first motion vector that represents estimated motion between at least some pixels in the modified interlacing field data and the reference interlacing field data.
10. The method of claim 9 wherein the first motion vector is assigned to each pixel within the first region.
11. The method of claim 10 wherein determining a first motion vector includes determining vertical and horizontal displacement between the first region and the first comparison region.
12. The method of claim 1 wherein comparing each comparison region of the second plurality of comparison regions with the second region to identify a second comparison region that most closely corresponds to the second region includes determining vertical and horizontal displacement between the second region and the second comparison region to determine a second motion vector that represents estimated motion between the first interlacing field data and the second interlacing field data.
13. The method of claim 12 wherein the second motion vector is assigned to each pixel within the second region such that at least one pixel that is a part of both the first region and the second region has both the first motion vector and the second motion vector assigned thereto.
14. The method of claim 13 wherein using at least information corresponding to the first comparison region and the second comparison region to convert the selected interlacing field data into progressive video information includes:
- selecting a pixel in the modified interlacing field data, which pixel has a specific respective location within the modified interlacing field data;

- identifying a corresponding pixel in the reference interlacing field data having a same specific respective location within the reference interlacing field data as the pixel has within the modified interlacing field data;
- using the corresponding pixel and the first motion vector to identify a first resultant
- 5 corresponding pixel having a first pixel value;
- using the corresponding pixel and the second motion vector to identify a second resultant corresponding pixel having a second pixel value;
- using at least the first and second pixel values to determine a new pixel value for the selected pixel;
- 10 - using the new pixel value for the selected pixel in the modified interlacing field data.

15. The method of claim 14 wherein using at least the first and second pixel values includes weighting at least one of the first and second pixel values.

- 15 16. The method of claim 15 wherein weighting at least one of the first and second pixel values includes weighting more heavily that pixel value that corresponds to a motion vector that corresponds to a smallest difference between a pixel in the selected modified interlacing field data and a corresponding pixel in the reference interlacing field data.

- 20 17. A method for converting interlacing video information into progressive video information, comprising:
 - providing a group of top field lines and a group of bottom field lines;
 - selecting one of the groups to be a selected group and a remaining group to be a
 - 25 reference group;
 - adding additional line information to the selected group to provide a modified selected group;
 - selecting a first region in the modified selected group;
 - selecting a first plurality of comparison regions in the reference group;
 - 30 - comparing each comparison region with the first region to identify a particular comparison region that most closely corresponds in content to the first region;

- selecting a second region in the modified selected group which second region at least partially overlaps with the first region;
- selecting a second plurality of comparison regions in the reference group;
- comparing each comparison region of the second plurality of comparison regions with the second region to identify a particular second comparison region that most closely corresponds in content to the second region;
- using at least information corresponding to the particular comparison region and the particular second comparison region to convert the selected group of field lines into progressive video information.

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18. The method of claim 17 wherein:

- selecting a first plurality of comparison regions in the reference group includes selecting a first comparison region that has a same relative location in the reference group as the first region has in the modified selected group, and wherein at least some of the first plurality of comparison regions partially overlap the first comparison region; and
- selecting a second plurality of comparison regions in the reference group includes selecting a second comparison region that has a same relative location in the reference group as the second region has in the modified selected group, and wherein at least some of the second plurality of comparison regions partially overlap the second comparison region.

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19. A method comprising:
- providing a first group of visual information and a second group of visual information wherein the first group and second group together comprise a quantity of data equaling at least approximately one frame of visual information and wherein the first group of visual information is temporally displaced with respect to the second group of visual information;
 - adding visual information to at least one of the first and second group of visual information to provide a frame of visual information;
 - identifying a plurality of information item groups in the frame of visual information

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wherein each information item group contains a unique group of information items and where each information item group also includes at least one shared information item;

- 5 - estimating movement by comparing each of the information item groups against reference visual information to determine motion vectors that correspond to differences between the information item groups and the reference visual information.

10 20. The method of claim 19 and further comprising using the motion vectors to identify new pixel values.

21. The method of claim 20 wherein using the motion vectors to identify new pixel values includes weighting at least one of the new pixel values.

15 22. The method of claim 21 wherein weighting at least one of the new pixel values includes weighting a new pixel value that corresponds to a motion vector that corresponds to an information item group that least differs from the reference visual information.

20 23. The method of claim 19 wherein identifying a plurality of information item groups includes identifying multiple pluralities of information groups in the frame of visual information wherein each plurality of information groups includes information groups that each contain a unique group of information items and where each also includes at least one shared information item, and wherein each plurality of information groups includes information items that are unique to that plurality of information groups.

25 24. A method for converting interlacing video information into progressive video information, comprising:

- 30 - providing a frame of video information comprised of a plurality of odd lines of pixels and a plurality of even lines of pixels, which lines are interleavable to thereby provide a single frame of interlaced video information;
- selecting one of the plurality of odd lines and even lines to be a first selected group

and a remaining plurality to be a first reference group;

- adding additional line information to the first selected group to provide a modified first selected group;
- selecting a first region in the modified first selected group;
- 5 - selecting a first plurality of comparison regions in the first reference group;
- comparing each comparison region in the first reference group with the first region in the modified first selected group to identify a particular comparison region in the first reference group that most closely corresponds in content to the first region in the modified first selected group;
- 10 - selecting a second region in the modified first selected group which second region in the modified first selected group at least partially overlaps with the first region in the modified first selected group;
- selecting a second plurality of comparison regions in the first reference group;
- comparing each comparison region of the second plurality of comparison regions in the first reference group with the second region in the modified first selected group to identify a particular second comparison region in the first reference group that most closely corresponds in content to the second region in the modified first selected group;
- 15 - using at least information corresponding to the particular comparison region in the first reference group and the particular second comparison region in the first reference group to convert the plurality of lines of pixels in the first selected group into a first frame of progressive video information;
- selecting whichever of the plurality of odd lines and even lines as was previously selected to be the first reference group to be a second selected group and selecting whichever of the plurality of odd lines and even lines as was previously selected to be the first selected group to be a second reference group;
- 25 - adding additional line information to the second selected group to provide a modified second selected group;
- selecting a first region in the modified second selected group;
- 30 - selecting a first plurality of comparison regions in the second reference group;
- comparing each comparison region in the second reference group with the first

region in the modified second selected group to identify a particular comparison region in the second reference group that most closely corresponds in content to the first region in the modified second selected group;

- selecting a second region in the modified second selected group which second
 - 5 region in the modified second selected group at least partially overlaps with the first region in the modified second selected group;
 - selecting a second plurality of comparison regions in the second reference group;
 - comparing each comparison region of the second plurality of comparison regions in the second reference group with the second region in the modified second selected
 - 10 group to identify a particular second comparison region in the second reference group that most closely corresponds in content to the second region in the modified second selected group;
 - using at least information corresponding to the particular comparison region in the second reference group and the particular second comparison region in the second
 - 15 reference group to convert the plurality of lines of pixels in the second selected group into a second frame of progressive video information;
- such that two frames of progressive video information are thereby provided.